AHD

Analog High Definition

CAMERA

USER MANUAL

Thank you for purchasing our product. There may be several technically incorrect places or printing errors in this manual. The updates will be added into the new version of this manual. We will readily improve or update the products or procedures described in the manual. The content is subject to change without notice.

Warning and Cautions

Before using the product, please read this manual carefully to ensure that you can use the product correctly to avoid danger or property loss. Please store this instruction manual in a safe place for future reference.

Input voltage should meet both the SELV (Safety Extra Low Voltage) and the Limited Power Source with DC 12V. Please refer to technical specifications for detail information.

■ If the product does not work properly, please contact your dealer or the nearest service center. Never attempt to disassemble the camera yourself. (We shall not be responsible for any problems caused by unauthorized repair or maintenance.)

■ Keep away from liquid while in use.

■ In the use of the product, you must be strict compliance with the electrical safety regulations of the nation and region.

When the product is mounted on wall or ceiling, the device shall be firmly fixed.

■ Make sure the power supply voltage is correct before using the camera.

■ Do not drop the camera or subject it to physical shock.

■   If cleaning is necessary, please use clean cloth to wipe it gently. If the device will not be used for a long time, please cover the lens cap to protect the device from dirt.

■   Do not aim the camera at the sun or extra bright place. A blooming or smear may occur otherwise (which is not a malfunction however), and the endurance of the device will be affected at the same time.

■   The device may be burned out by a laser beam, so when any laser equipment is in use, make sure that the surface of the device will not be exposed to the laser beam.

■   Do not place the camera in extremely hot, cold (the operating temperature shall be -20℃~50℃), dusty or damp locations, and do not expose it to high electromagnetism radiation.

■   To avoid heat accumulation, good ventilation is required for operating environment.

■   While on a delivery, the camera shall be packed in its original packing, or packing of the same texture.

■   A few parts of the device shall be replaced regularly according to their average enduring time. Regular checking is recommended for all users.

Table of Contents

1   Introduction

This series of the camera adopts the latest AHD technology and advanced circuit design, feature high definition and sensitivity, low noise and distortion and supports HD video transmission with the common coaxial cable, ensuring the requirement of the HD monitoring in the traditional surveillance system.

- **High Resolution and Sensibility**

720P/1080P real-time image with high definition and good color reproduction. The sensibility is up to 0.01 LUX due to the installation of the high quality of the built-in removable optical filter.

- **High Transmission Performance**

Real-time transmission with high speed and long distance.

- **High Light Control (HLC)**

Mask and compensate the high light areas so as to make right exposure selection.

- **ICR Auto Switch**

The filter will filter infrared light during the daytime and change to normal at night to ensure a high sensitivity and clear image.

- **DNR**

Under low illumination condition, you can reduce noise from brightness and color signal to save a lot of storage room.

- **OSD**

The setup menu clearly displays the functions and features of the camera and many languages can be selected. It is easy for users to set the corresponding items.

● **Privacy Masking**

When there are not necessary for some area to display in the screen, you can mask this area.

● **Backlight Compensation（BLC）**

When the back of the captured object is bright, you can set BLC for the captured object to make it clearer.

● **Motion Detection**

When the camera captures the moving object in the detection area, it will send signal. So it's easy for users to monitor the live.

◆ **Cable Connections**
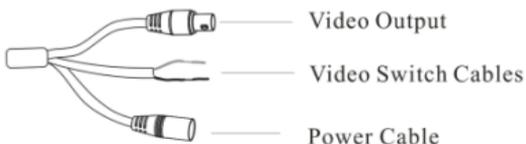
● **Connecting to monitor**

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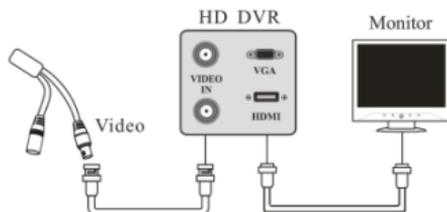
* The default video output is AHD video signal output. The video output will be changed to CVBS video signal output by jointing the two video switch cables. Untie the two cables to restore the video output to the AHD video signal output.

● **Connecting to power**
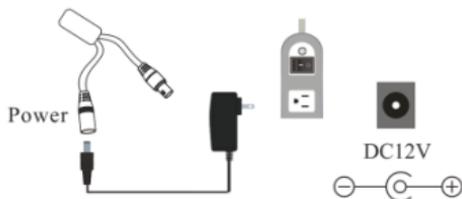
2 Menu Setup

Before starting, connect with the power cables and video cables. Please make sure all the connection is good. Plug out the power cable and then the camera will shut down immediately.

☞ **This series of the camera must be connected to the DVR which support AHD video input. The DVR must be also support to set the menu of the camera, or the function of menu setup here is not available. Before you use this function, please make sure your DVR support this function. Different DVRs manufactured by different DVR manufacturers may have different modes of menu operation.**

Here we take 16 CH DVR of our company for example. After starting the DVR, the following menu toolbar will pop up by right-clicking the mouse.

■ ■^ ■^ ▦^ ▥^ ▦^ ▦^ ▦^ ▦ 🐾 IPC 🔅 Q ◀◎ ● 📷 🔴 ▶^ ⊹

You will see the following interface by clicking 🔘 button.
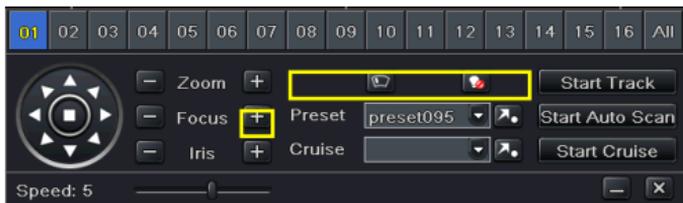
Directly click "Iris +" to go to the following main menu. You can also select preset NO. 95 and then click 🔼 button （call preset NO.95）to go to the following main menu.

```
                 MAIN MENU
    ▷  1. LENS              MANUAL
       2. EXPOSURE          ⤶
       3. BACKLIGHT         OFF
       4. WHITE BAL         AWB
       5. DAY&NIGHT         EXT ⤶
       6. NR                ⤶
       7. SPECIAL           ⤶
       8. ADJUST            ⤶
       9. EXIT              SAVE&END ⤶
```
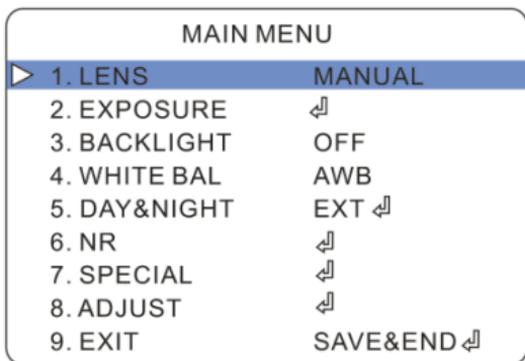
You can select the menu by clicking ▲(U) or ▼ (D) key on the direction key area. Click ◀ (L) or ▶ (R) key to select the menu on the left. The menu with arrow icon which means it has sub-menu. You can select the menu and click "Iris +" or call preset NO.95 to enter the sub-menu. To return to the previous menu or exit the main menu, please select "RET" or "Save & END" by clicking U or D key and then click "Iris

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+" or call preset NO.95 (Hereinafter we only take "Iris +" for example).

2.1 Lens Setup

Lens setup include manual setup and DC lens setup. To select the lens mode, please click "L" or "R" key.

DC lens setup: Select DC and then click "Iris +". This will take you to see the following sub-menu.

```
           DC LENS MODE
 ▷ 1. MODE          OUTDOOR ↵
   2. IRIS SPEED    ▦▦▦▦▦▦ 8
   3. RETURN        RET ↵
```

Mode: Indoor mode and outdoor mode are selectable.

Iris Speed: Click "L" or "R" key to adjust the iris speed.

Select RETURN and choose RET to return to the previous menu.

2.2 Exposure

Select "EXPOSURE" and then click "Iris +". This will bring the following sub-menu.

```
             EXPOSURE
 ▷ 1. SHUTTER        AUTO
   2. AGC            ▦▦▦▦▦ 12
   3. SENS-UP        OFF
   4. BRIGHTNESS     ▦▦▦▦▦▦ 33
   5. D-WDR          ON ↵
   6. DEFOG          AUTO ↵
   7. RETURN         RET ↵
```

SHUTTER: Auto, 1/30 (NTSC)/ 1/25 (PAL), 1/60 (NTSC)/ 1/50(PAL), FLK, 1/240(NTSC)/ 1/200(PAL), 1/480(NTSC)/ 1/400(PAL), 1/1000, 1/2000, 1/5000, 1/10000, 1/50000, ×2 and so on are selectable.

AGC: When the light is insufficient, please set AGC level. Please increase or decrease the level as required.

SENS-UP: Extend the exposure time of camera. The higher the time is, the lower the frame is but the longer the shadow is in low illumination condition. Please select times as needed. OFF, ×2, ×4, ×6, ×8 and ×10 are selectable.

BRIGHTNESS: Click "L" or "R" key to increase or decrease the level of the brightness.

D-WDR: Lighten the dark area and control the highlight area. There are three options: ON, OFF and AUTO. If ON is selected, the level of the D-WDR can be adjustable.

DEFOG: In foggy weather, you can set up this function to see the object behind fog clearly. You can select AUTO or OFF. When AUTO is selected, you can go to the submenu of the Defog and set up position, size and gradation.

```
                  DEFOG
  ▷ 1. POS/SIZE        ⏎
    2. GRADATION      ▥▥ ▥▥ ▥▥ ▥▥ ▥▥ 0
    3. DEFAULT         ⏎
    4. RETURN          RET ⏎
```
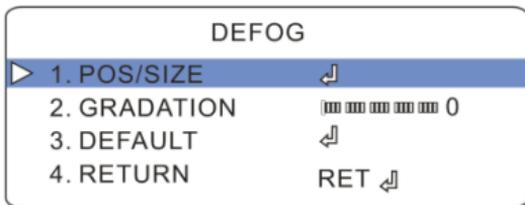
● POS/SIZE: Click direction key to set the position and size of BLC area. The position setting and size setting can be switched by clicking "Iris +".

● GRADATION: Click "L" or "R" key to adjust it.

2.3 Backlight Setup

BACKLIGHT: OFF, BLC, or HSBLC can be selectable.

If OFF is selected, the system will not compensate the image.

If BLC is selected, it will enhance the brightness of the image.

After entering the submenu of BLC, you can set LEVEL, AREA and DEFAUT.

```
                    BLC
  ▷ 1. LEVEL          MIDDLE
    2. AREA           ⏎
    3. DEFAULT        ⏎
    4. RETURN         RET ⏎
```

LEVEL: The higher the level is, the brighter the image is. There are three options: LOW, HIGH and MIDDLE.

AREA: Please set it through the direction keys and use the "Iris +" key to switch the position and size settings.

DEFAULT: If the parameters of BLC setup are out of order, please select DEFAULT to reset settings.

If HSBLC is selected, the high brightness will be suppressed and the low brightness will be enhanced at the same time. As a result, the image in a certain area will be exposed properly. (Please use the fixed IRIS Lens). This function can be used to shoot license plate number. Select HSBLC to go to its submenu.

```
            HSBLC
▷  1. SELECT         AREA 1
   2. DISPLAY        ON ⏎
   3. BLACK MASK     ON
   4. LEVEL          ▥ ▥ ▥ ▥ ▥ 20
   5. MODE           NIGHT ⏎
   6. DEFAULT        ⏎
   7. RETURN         RET ⏎
```

SELECT: There are four areas.

DISPLAY: Display the HSBLC areas. There are four areas.

BLACK MASK: Mask the highlight area.

LEVEL: You may increase or decrease the level.

MODE: There are two modes: ALL DAY and NIGHT.

DEFAULT: Reset the setup of HSBLC to the default setting.

2.4 White Balance Setup

Select "**WHITE BAL**" to choose the White Balance modes.

ATW: In this mode, the camera will constantly monitor color temperature among about 2500~9500K and adjust white balance automatically. This mode is prior to other modes.

AWC→SET: Select it and click "Iris +" to go to the lock mode of white balance. Then the camera locks the reference value of red and blue under the current color temperature and stops monitoring color temperature. When the environment changes, please click " Iris+" again to unlock.

INDOOR: Select it to go to indoor mode.

OUTDOOR: Select it to go to outdoor mode.

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MANUAL: When the camera is used in the environment with a certain unchangeable light source, you can use this mode. You can adjust the level of blue and red to reach the reasonable results of white balance.

AWB: Auto White Balance.

2.5 Day & Night Setup

There are four modes: EXT, AUTO, COLOR and B/W.

◆ **EXT**

If this mode is selected, the light resource and image will be changed synchronously as the change of the external environment. You may go into the submenu to set the delay time.

◆ **AUTO**

When selecting AUTO, the camera will change into the color mode in the daytime or B/W mode at night so that you can get the best and clearest images. Select AUTO to enter sub-menu.

```
           D&N ATUO
 ▷ 1. D⇨N (AGC)     ▥▥ ▥▥ ▥▥ ▥▥ ▥▥ 200
   2. D⇨N (DELAY)   ▥▥ ▥▥ ▥▥ ▥▥ ▥▥ 0
   3. N⇨D (AGC)     ▥▥ ▥▥ ▥▥ ▥▥ ▥▥ 80
   4. N⇨D (DELAY)   ▥▥ ▥▥ ▥▥ ▥▥ ▥▥ 0
   5. RETURN        RET ↵
```

D➔N (AGC): Set the range of the illumination from color to B/W.

D➔N (DELAY): Set day to night switching delay time.

N➔D (AGC): Set the range of the illumination from B/W to color.

N→D (DELAY): Set night to day switching delay time.

◆ **COLOR**

In this mode, the camera will not switch to B/W function in low illumination condition.

◆ **B/W**

Select this mode and go to the following sub-menu.

```
                    B/W
  ▷ 1. BURST          OFF
    2. IR SMART       ON ⏎
    3. RETURN         RET ⏎
```

BURST: If you want to obtain the standard B/W signal, please select off.

IR SMART: When the object with IR light is captured, please enable it and then go to submenu for IR level and area setup.

```
                 IR SMART
  ▷ 1. LEVEL        ▥▥▥▥▥▥ 0
    2. AREA                ⏎
    3. RETURN         RET ⏎
```

LEVEL: Compensate the light reduction caused by infrared abatement. Please increase or decrease the level as required.

AREA: Please set it through the direction keys and use the "Iris +" key to switch the position and size settings.

2.6 Noise Reduction

Select NR and click "Iris +" to go to the following sub-menu.

```
               NR
▷  1. 2 DNR          LOW
   2. 3 DNR          LOW
   3. RETURN         RET ⏎
```

2DNR and 3DNR can be set. Comparing with the 2DNR, the 3DNR function processes the noise between two frames besides processing the noise in one frame. You can select the level of the 2D/3D digital noise reduction as required.

2.7 Special

```
            SPECIAL
▷  1. CAM TITLE      ON ⏎
   2. D-EFFECT       ⏎
   3. MOTION         ON ⏎
   4. PRIVACY        OFF
   5. LANGUAGE       ENG ⏎
   6. DEFECT         ⏎
   7. RS 485         ⏎
   8. RETURN         RET ⏎
```

2.7.1 Camera Title

Select CAMERA TITLE to select On/Off.

Select On. You can set the camera name by clicking direction key. After selecting the single letter, number or symbol, please click "Iris +" to confirm it. Select "CLR" and click "Iris +" to delete the selected letters,

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numbers or symbols. Select "POS" and click "Iris +" to go to the ID Position setup interface.

2.7.2 D-Effect

Go to D-EFFECT menu as shown below.

```
            D-EFFECT
 ▷ 1. FREEZE        OFF
   2. MIRROR        OFF
   3. NEG.IMAGE     OFF
   4. RETURN        RET ⏎
```

FREEZE: If selecting ON, MIRROR function will be unavailable.
MIRROR: Mirror the current image. There are four kinds of mirror: OFF, ROTATE, V-FLIP and MIRROR.
NEG. IMAGE: If ON is selected, you will see the negative image.

2.7.3 Motion

Select ON to set up motion detection alarm.

```
              MOTION
 ▷ 1. SELECT       AREA 1
   2. DISPLAY      ON  ⏎
   3. SENSITIVITY  ▥▥▥▥▥ 64
   4. COLOR        GREEN
   5. TRANS        0.00
   6. ALARM        ⏎
   7. DEFAULT      ⏎
   8. RETURN       RET ⏎
```

SELECT: There are four areas.

DISPLAY: If ON is selected, you can set its size and position.

SENSITIVITY: You may adjust the sensitivity of the detection area.

COLOR: Select the color of the motion detection area.

TRANS: Set the transparency of the color block of the motion detection area.

ALARM: Select it and click "Iris +" to go to the following menu.

```
                  ALARM
   ▷ 1. VIEW TYPE        ALL
     2. OSD VIEW         ON
     3. ALARM OUT.       ON
     4. TIME             ▥▥▥▥▥ 3
     5. RETURN           RET ⏎
```

● VIEW TYPE: OFF, BLOCK, OUTLINE and ALL are optional.

● OSD VIEW: Select ON. The words "MOTION DETECTION" will be displayed on the live image when the motion alarm is triggered.

● ALARM OUT.: Select ON. The alarm output will be triggered when the motion detection alarm is triggered.

● TIME: Alarm hold time. 3 means 3seconds.

DEFAULT: Reset all settings of Motion to the default value.

RETURN: Return to the previous interface.

2.7.4 Privacy

Select "PRIVACY" to select On/Off. If you want to mask some areas, please select "On" and go in the privacy setup interface.

```
             PRIVACY
  ┌─────────────────────────────────┐
  │▷ 1. SELECT        AREA 1         │
  │  2. DISPLAY       COLOR ⏎        │
  │  3. COLOR         WHITE          │
  │  4. TRANS         1.00           │
  │  5. DEFAULT       ⏎              │
  │  6. RETURN        RET ⏎          │
  └─────────────────────────────────┘
```

SELECT: There are four areas to select.

DISPLAY: There are four options: COLOR, OFF, INV, and MOSAIC.

COLOR: There are eight colors to select for the area.

TRANS: Set the transparency of the mask area.

DEFAULT: Reset all settings of privacy to the default value.

2.7.5 Language Setup

Support many languages: simplified Chinese, Traditional Chinese, English, Polish, Portuguese, Spanish, Russian, French, Italian, German and so on.

2.7.6 Defect

The DEFECT includes LIVE DPC and Static DPC.

```
              DEFECT
  ┌─────────────────────────────────┐
  │▷ 1. LIVE DPC      OFF            │
  │  2. WHITE DPC     ON ⏎           │
  │  3. BLACK DPC     OFF            │
  │  4. RETURN        RET ⏎          │
  └─────────────────────────────────┘
```

LIVE DPC: ON and OFF are optional. If ON is selected, the AGC level and level of live DPC can be adjustable.

White DPC: If ON is selected, you can enter the following submenu.

```
                    WHITE DPC
  ▷ 1. POS/SIZE          ⏎
    2. START             ⏎
    3. DPC VIEW          OFF
    4. LEVEL             ▥▥▥▥▥ 8
    5. AGC               ▥▥▥▥▥ 13
    6. SENS-UP           X 8
    7. RETURN            RET ⏎
```

- POS/SIZE: Click "Iris+" to switch the position and size settings.
- START: Close the iris or cover the lens before starting white DPC.
- LEVEL: You may set the level of white DPC.
- AGC: Please increase and decrease the value as required.
- SENS-UP: Extend the exposure time of camera. The higher the time is, the lower the frame is.

BLACK DCP: If ON is selected, you will see the following menu.

```
                    BLACK DPC
  ▷ 1. POS/SIZE          ⏎
    2. START             ⏎
    3. DPC VIEW          OFF
    4. LEVEL             ▥▥▥▥▥ 100
    5. RETURN            RET ⏎
```

The POS/SIZE settings are the same as that of white DPC. Please directly click "Iris+" to start black DPC.

2.7.7 RS 485

If you want to set the menu remotely, you have to set the RS485
parameters of the camera the same as those of the keyboard.

Go to Main Menu→ Special→ RS 485 menu as shown below.

```
              RS 485
 ▷ 1. CAM ID          m m m m m m 0
   2. ID DISPALY      OFF
   3. BAUDRATE        38400
   4. RETURN          RET ↵
```

The camera ID ranges from 0 to 254. The default protocol is PELCOD.
The baudrate includes 2400, 4800, 9600, 19200 and 38400.

* The models must support RS 485 function, or the settings here will be
invalid.

2.8 Image Adjustment

Select ADJUST to go to the image adjustment menu.

```
              ADJUST
 ▷ 1. SHARPNESS       AUTO ↵
   2. MONITOR         LCD ↵
   3. LSC             OFF
   4. VIDEO.OUT       PAL
   5. RETURN          RET ↵
```

SHARPNESS: Select AUTO to enter sharpness setup menu. Please set the
level, start AGC and end AGC of the sharpness.

```
              SHARPNESS
  ▷ 1. LEVEL          ▭▭▭▭▭▭▭ 5
    2. START AGC      ▭▭▭▭▭▭▭ 70
    3. END AGC        ▭▭▭▭▭▭▭ 150
    4. RETURN         RET ↵
```
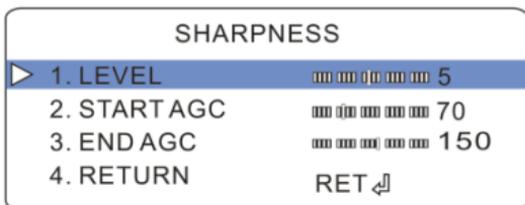
The higher the level of the sharpness is, the clearer the outline of the image is, but the more the noises are. Please select the level as required.

MONITOR: LCD and CRT are selectable. Choose one type of the monitor and click "Iris+" to set the value of GAMMA (only available for LCD monitor), blue gain and red gain.

● GAMMA: Set the value of GAMMA. USER, 0.45, 0.50, 0.50, 0.60, 0.65, 0.70, 0.75, 0.80, 0.85, 0.90, 0.95 and 1.00 are selectable.

● BLUE GAIN: Increase or decrease the value of blue.

● RED GAIN: Increase or decrease the value of red.

LSC: If ON is selected, the brightness of the edge of the image will be compensated.

VIDEO. OUT: PAL and NTSC are selectable.

2.9 Exit

This function includes SAVE&END, RESET and NOT SAVE. If the parameters of the camera are out of order and the camera cannot display images, you may choose RESET and click "Iris +" to reset all setups. Select SAVE&END to save and exit the menu setup. The settings will not be saved by selecting NOT SAVE.

Note: If you shut down your device but don't exit the menu setup interface, all settings set above will not be saved.